ceeded in 1889 to Cambridge with a science scholarship at Downing College. At Cambridge he took the Natural Science Tripos and was for a short time assistant demonstrator in the Physiological School. Whilst at Cambridge he was a prominent member of the Cambridge Natural History Society and some time its president. At this time he was keenly interested in almost every department of natural science and philosophy. As a friend who was his contemporary has expressed it, he was an amateur of science in the best sense of that word.

After leaving Cambridge Rowland came to London and completed his medical studies at St. Bartholomew's Hospital. At the end of 1898 he received an appointment which afforded him scope for his particular gifts, namely, that of assistant bacteriologist at the Lister Institute, and he remained a member of its staff until his death. Henceforth he was able to devote the whole of his time to scientific investigation.

Rowland was an extraordinarily good mechanic, and his ingenuity and skill were at all times at the service of his colleagues. The conquest of technical difficulties was a pure joy to him, and he was even sometimes in danger of letting it assume the importance of an end in itself. He early became an excellent microscopist, and ultimately acquired an unusually perfect command of all the applications of what he used to term "glass and brass."

His earlier researches were concerned with the structure of bacteria and the study of various enzymes which Hedin and he discovered in the expressed juices of animal cells. The next important piece of work upon which he was engaged was carried out in conjunction with the late Dr. MacFadyen. The latter having ascertained that bacteria survived the temperature of liquid air, it occurred to him and Rowland that grinding up bacteria at this low temperature would afford a cell-juice much more nearly resembling the composition of living bacteria than had hitherto been possible to attain, and they hoped that the injection of bacterial cell-juices, so obtained, into animals might afford curative sera for typhoid and other diseases. The research was a lengthy one, and the technical difficulties to be overcome very considerable. The latter were ultimately conquered by Rowland, but the result was disappointing, and the main object was not attained.

Rowland was a member of the Commission for the Investigation of Plague in India and worked at Bombay during 1905 and 1906. He took an active part in establishing the dependence of the human epidemic of plague upon the rat epizootic and the importance of the rat flea in the spread of the disease.

On his return to England he worked upon problems in plague immunity, principally with a view to the improvement of methods of prophylactic inoculation, and published a number of important papers on this subject. He was still occupied in this work when, in October, 1914, he obtained a commission in the R.A.M.C. and proceeded to France in charge of No. 1 Mobile Laboratory. He was recently engaged in discovering meningococcus "carriers" amongst troops and contracted the disease himself.

Rowland had an original and versatile mind and was interested in almost all departments of scientific activity. He was somewhat erratic, but a faithful friend, whose spontaneous gaiety and generous sympathy endeared him to all those who knew him intimately.

C. J. M.

NOTES.

It is officially announced that Mr. A. D. Hall has been appointed Permanent Secretary to the Board of Agriculture in succession to Sir Sydney Olivier, K.C.M.G., now resigned. Sir Sydney has made many friends at the various agricultural colleges and research institutions, and his term of office has been marked by a kindly and sympathetic consideration of all matters relating to the application of science to agriculture. He carries with him into a well-earned retirement the good wishes of all those with whom he was brought into contact. The agricultural teachers and advisers, and the workers at the agricultural institutions generally, greatly appreciated his sincerity and his obvious desire to help British agriculture in every way possible. During his term of office the Board of Agriculture has considerably expanded, and is now larger than ever before. Mr. Hall's appointment as Sir Sydney's successor will be welcomed everywhere, and will be taken as an earnest that still further developments are contemplated. Mr. Hall has recently put forward his ideas in his book, "Agriculture after the War," in which he sets out a coherent plan for the development of British agriculture on sound scientific lines. Several of the recommendations have since been adopted, and there can be little doubt that the war period will furnish experience of special measures which will be invaluable in the reconstruction after the war. Thus Mr. Hall starts in his new office at an opportune moment for further developments. At the same time it must be admitted that in many respects the situation is bad; some egregious blundering on the part of War Office officials in their dealings with agriculturists has recently come to light, and has caused serious misgivings among farmers. Mr. Hall has the hearty good wishes of everyone in the attempts he will doubtless make to straighten out the tangle.

When the establishment of a separate Department of Scientific and Industrial Research was announced in December last, Lord Crewe stated that the Chancellor of the Exchequer was prepared to advise the Government to devote a sufficient sum to cover operations during the next five years on a scale which would provide four, or perhaps five, times as much for co-operative industrial research as had been spent for the whole purposes of research hitherto. The Civil Service Estimates just issued include the sum of 1,038,050*l.* to the Department of Scientific and Industrial Research, being a net increase of 998,050*l.* upon last year's amount. Grants for investigations carried out by learned and scientific societies, etc., are estimated at 24,000*l.*, and grants to students and other persons engaged in research at 6000*l.* These grants will be distributed by a committee of the Privy Council, on the recommendation of the Advisory Council, to promote the development of scientific and industrial research in the United Kingdom, and will be subject to such conditions as the committee may think necessary. The 1,000,000*l.* grant in aid of industrial research will be paid to the account of the Imperial Trust for the encouragement of scientific and industrial research. The expenditure of the trust will be audited by the Comptroller and Auditor-General, but any balance remaining on the account will not be surrendered at the close of the financial year. Grants will be made by the directions of the Committee of the Privy Council over an agreed period to approved trade associations for research, to supplement the funds of the associations, and payments in respect of such grants will not be liable to surrender by the grantees at the end of the financial year. We understood from Lord Crewe's remarks on December 1 that for the next five years or so about 200,000*l.* a year would be available for scientific and industrial research, so that apparently the grant of 1,000,000*l.* is the sum which is to be drawn upon for this purpose. The amount estimated for salaries, wages, and allowances in the new department is 7250*l.*, which includes 1500*l.* for the secretary and 850*l.* for the assistant secretary. Travelling and incidental expenses are estimated to amount to 800*l.*

PROF. C. S. SHERRINGTON, Waynflete professor of physiology in the University of Oxford, has been elected a corresponding member of the R. Accademia delle Scienze of Bologna.

ON Thursday next, March 29, at 3 p.m., the president of the Royal Society will unveil the memorial to Sir William and Lady Huggins in St. Paul's Cathedral. Addresses will be given by the president, and by the president of the Royal Astronomical Society.

THE annual general meeting of the Chemical Society will be held at Burlington House on Thursday, March 29, at 4 p.m., when a ballot for the election of officers and council for 1917–18 will be held, and Dr. Alexander Scott, the retiring president, will deliver an address entitled "The Atomic Theory."

THE death is announced, in his sixty-eighth year, of Dr. E. D. Peters, professor of metallurgy at Harvard University and the Massachusetts Institute of Technology since 1904. He was the author of standard works on copper smelting, as well as of many technical monographs.

DR. W. C. ALPERS, dean of the School of Pharmacy at Western Reserve University, Cleveland, has died in that city at the age of sixty-six. He was a native of Hanover, and studied at Göttingen. In 1914 he was elected president of the American Pharmaceutical Association. He was a member of the revision committee of the U.S. Pharmacopœia, and the author of volumes on "The Medicinal Plants of Staten Island" and "The Pharmacist at Work."

ATTEMPTS have recently been made to work coal on the island of Bornholm, in the southern Baltic. No Carboniferous rocks are exposed, since apparently they have been cut out bv the faults that have brought Rhætic, Lias, and later rocks against the older Palæozoics. Traces of coal have, however, been found by boring, but the attempts referred to have now shown that any workable layers lie at such a depth that their exploitation is not a paying proposition.

THE council of the Incorporated Municipal Electric Association, recognising the important part that electricity may be made to play in the better cultivation and greater production of the land and in the extension of rural industries, has formed the nucleus of what is ultimately intended to be a committee representative of all interests with the object of a thorough investigation into the technical and commercial problems underlying the application of electrical energy for such purposes. The chairman of the committee is Mr. S. E. Britton, City Electrical Engineer, of Chester, and among the objects are:—(1) To investigate and advise upon the problems underlying the supply and use of electrical energy in agricultural areas for power, lighting, heating, culture, and other purposes for farms, villages, and rural industries. (2) To collect and collate information, and publish literature bearing upon the above. (3) To co-operate with agricultural and other associations. (4) To investigate in co-operation with manufacturers the development, manufacture, and adaptation of agricultural machinery, and appliances for utilising electrical energy.

THE Royal Geographical Society announces that the King has approved of the award of the Royal Medals for the present year as follows:—Founder's Medal to Commander D. G. Hogarth, R.N.V.R., for his explorations and other geographical work in Asiatic Turkey, 1887–1911; Patron's Medal to Brig.-Gen. Rawling, C.M.G., for his explorations in western Tibet and Rudok, 1903, his journey from Gyantse to Simla *viâ* Gartok, 1904, and his explorations in New Guinea, 1908; Victoria Medal is awarded to Dr. J. Scott Keltie for his eminent services to geography during his secretaryship of the society. The other awards are:—Murchison Grant to Rai Bahadur Lal Singh for his devoted work as surveyor to the expedition of Sir Aurel Stein; Back Grant to the Rev. Walter Weston for his travels and explorations in the Japanese Alps—a district previously unknown to Europeans; Cuthbert Peak Grant to Dr. A. M. Kellas for his exploration and ascent of new peaks in Sikkim, and his investigation of the effects of high altitude; Gill Memorial to Mr. E. C. Wilton for his geographical work in south-western China.

THE Advisory Committee for Aeronautics has appointed a Light Alloys Sub-Committee. The members of the sub-committee are Mr. Henry Fowler, superintendent of the Royal Aircraft Factory (chairman), Lieut.-Commander C. F. Jenkin, R.N.V.R., and Prof. F. C. Lea, representing the Air Board; and Capt. H. P. Philpot, Mr. A. W. Johns, and Dr. W. Rosenhain, representing respectively the Aeronautical Inspection Department, the Director of Naval Construction, Admiralty, and the National Physical Laboratory; together with the chairman of the Advisory Committee for Aeronautics, *ex officio*. The functions of this sub-committee will be to advise Government Departments on questions relating to light alloys, to institute research for the development and improvement of such alloys and the methods of working them, and to assist in the removal of difficulties which may arise in their production and use. It will be in close touch with the experimental work on light alloys which is being carried out at the National Physical Laboratory, the Royal Aircraft Factory, the University of Birmingham, and elsewhere, and hopes to be able to give advice and assistance to manufacturers undertaking the production of light alloys and to founders engaged in the manufacture of engine parts, cylinders, pistons, crank cases, etc.

AT the first ordinary meeting of the Refractory Materials Section of the Ceramic Society, held at Leeds University, it was stated that the remarkable properties of zirconia make it an admirable refractory. Even the natural crude zirconia is well adapted for use in electrical furnaces and in other cases where exceptionally strong heat has to be resisted. In Germany it was used for various purposes, and before the war was sold at prices ranging from about 31*l.* to about 50*l.* per ton, according to the degree of purity. Podszus proposes to make refractory ware of fused zirconia, burning at 2300°–2400° C. in a furnace made chiefly of fused zirconia, using coal-gas, petroleum, or acetylene, first with air-blast and finally with oxygen-blast. Ruff and Lauschke found the melting point of pure zirconia to be 2563° ± 10° C., and that addition of small proportions of alumina (1 per cent.), thoria (1 per cent.), or yttria (1 to 3 per cent.) was beneficial when burning zirconia up to 2000°, 2200°, or 2400° C. respectively. Dr. J. W. Mellor ascribed the spalling of magnesite bricks to two main causes: the shrinkage resulting from the change of calcined magnesite from a form having a lower specific gravity to a form with a higher specific gravity, and the shrinkage caused by the closing of the pores on heating. The feasibility of setting up a definite standard was asserted. Prof. J. W. Cobb, referring to methods of control for the temperature-time-atmosphere effects, said he had found it necessary to make Seger cones considerably larger, so that they might be easily visible in position and better able to withstand accidental heat-waves. He also found it advantageous to modify the shape, so as to give an edge instead of a point above. He hoped that now they are being made in England their disadvantages will not be perpetuated.

THE death of Mr. Baldwin Latham at the advanced age of eighty removes a notable link with the engineering profession in Victorian days. A generation ago Mr. Latham was in the forefront of practising civil engineers, and was widely known and respected as an authority on all matters connected with the science of sanitation. He was twice president of the Royal Meteorological Society and president of several other scientific societies, as well as twice Master of the Playing Card Makers' Company. His book on sanitary engineering, first published in 1873, speedily obtained recognition as a standard work, and was awarded a diploma of honour at the Health Exhibition of 1884. In the course of his practice, Mr. Latham was commissioned to prepare a great number of reports on schemes of water supply and sanitation for various localities. In Great Britain he actually carried into execution more than one hundred such works, in addition to advising on a great many more. Abroad, he designed and constructed water-supply and sewage-disposal works for Calcutta, Bombay, Ahmedabad, and other Indian cities, and he also prepared a scheme for Cairo. He was a great authority on underground water, and carried out extensive hydro-geological surveys. By the knowledge he acquired, he was enabled to forecast the outbreaks of the Croydon Bourne, which in some years flows down the Caterham Valley.

BY the death on March 3 of Mr. A. E. Gibbs, at fifty-eight years of age, St. Albans has lost one of its most esteemed citizens, and science an able and assiduous naturalist. Although engaged in business as a printer and part proprietor of the *Herts Advertiser* and the *Luton News,* Mr. Gibbs took an active part in all local educational matters, having been honorary secretary of the School of Science and Art, a member of the Education and Public Library Committees, and one of the founders of the new High School for Girls, and also of the Hertfordshire County Museum, of which he was a secretary and the curator of the natural history and numismatic collections, to each of which, and also to the archæological collection, he contributed largely. Commencing his scientific studies with geology, he early turned his attention to botany, especially cryptogamic, but lately he had chiefly devoted his energies to entomology, collecting Lepidoptera and other insects, not only in this country, but also on the continent of Europe and in northern Africa. He was a fellow of the Linnean, Zoological, Entomological, and Royal Horticultural Societies, and when he died was near the end of his two years' term of office as president of the Hertfordshire Natural History Society, his last publication, one of many papers he contributed to the society, being a presidential address on the "Satyrid Butterflies of Hertfordshire," illustrated by a coloured plate of *Pararge aegeria* and its varieties.

IT is with deep regret that we record the death, at the age of seventy-one, of Charles Achille Muntz, the distinguished French agricultural chemist, who was well known for his investigations on air, soil, and agricultural products generally. Muntz was of Alsatian birth, and began his scientific career as "préparateur" for Boussingault at the Conservatoire des Arts-et-Métiers, by whom he was attracted to agricultural chemistry. His first important work was done in connection with Schloessing in 1878, and formed a simple yet striking investigation, which at once attracted world-wide attention and has since led to remarkable developments. It had long been known that nitrates are formed in soil from nitrogenous organic compounds, and the reaction was proved to be of the highest agricultural importance. But the mechanism of the change was unknown; neither chemical nor physical causes seemed to account for it, and no other agent was suspected. Schloessing and Muntz began by measuring the amount of nitrification taking place when dilute sewage was allowed to trickle down a tube packed with chalk; they found that no action occurred for twenty-one days, but then it suddenly set in. Why, they asked, was this delay? If the process were chemical or physical, it should set in at once; the only explanation appeared to be that it was biological, the period of delay being the time needed for the multiplication of the organisms. This hypothesis was tested by adding a little chloroform; the process at once stopped; it was started again, however, when the chloroform was removed and some soil extract added. Although Muntz did not proceed further with the work, others took it up, and it led to the establishment of a new branch of science—soil bacteriology. Some years afterwards he showed how nitrification might be intensified so as to give a commercial source of nitrate if necessary; but subsequent electrical developments have probably displaced biological methods on the large scale. His other investigations, if they attracted less attention, were no less meritorious; he did good work on the chemistry of the atmosphere, determining its content of ammonia and nitric acid, and demonstrating also the presence of alcohol. His other chemical work dealt with mannite and other sugars, and with the nutrition of animals; finally, mention must be made of his admirable book on manures.

IN the March issue of *Man* Prof. C. G. Seligman discusses a series of canoe prow ornaments from Netherlands New Guinea. The occurrence of representations of birds in these carvings suggests that the natives of this region may have totem birds. It is remarkable that ornaments of this type do not seem to occur in British New Guinea west of Cape Nelson promontory. The suggestion is made that the Humboldt Bay ornaments represent the more archaic form which became modified in the Massim area by the influence of a foreign culture, Polynesian or Melanesian, of which there is abundant evidence in that district. "In other words, while the basic idea of the ornament remained unaltered, a people who may almost be said to have 'seen' in curves (if not in spirals) succeeded in imposing their idea of representation upon the simpler animal forms of the folk with whom they mixed."

THE Journal of the Royal Society of Antiquarians of Ireland (vol. xlvi., part ii., for December, 1916) contains two important contributions on Irish antiquities. Mr. T. J. Westropp continues his survey of ancient forts and dolmens in western Ireland with an account of those in Inagh and Killeimer, County Clare, in which a number of hitherto unknown buildings are described. Mr. J. P. Condon has carried out a similar survey of rude stone monuments in the northern portion of Cork County, in which he extends and brings up to date the catalogue of these erections made by Borlase in his "Dolmens of Ireland" and by other writers. Much destruction has taken place since the holdings have fallen into the hands of the peasant proprietary, and it is well that these interesting antiquities should be carefully described before it is too late.

THE *Psychological Bulletin* (vol. xiv., No. 1) contains an article by C. S. Berry on the effect of smoking on the speed and accuracy of adding figures. Each evening, half-an-hour after dinner, the writer added one hundred figures arranged in ten columns of ten figures each, the length of time taken to perform the operation being noted and also the number of errors. On alternate evenings he had smoked one cigar immediately before performing the test, and he kept records for twenty days. The results of the experiment, according to the author, are at variance with those of other investigators, giving, contrary to his expectation, an improvement of 7·7 per cent. in the time taken on the "smoking" days; the differences in the number of errors made were so slight as to be negligible. The author, however, does not say whether, prior to beginning the investigation, he had had sufficient experience of the test to have overcome the effect of practice, nor does he give the daily variations for a similar length of time under normal conditions. It is necessary to have had an extended series of normal records preceding a drug investigation before it can be confidently affirmed that the differences, if any, are true drug effects. Ordinary normal variations are surprisingly great for many tests, and particularly so for intellectual operations. The present article may serve, however, to stimulate further inquiry.

A CURIOUS human abnormality—the "Hereditary Absence of Phalanges through Five Generations"—is described by Dr. E. Cragg and Dr. H. Drinkwater in the *Journal of Genetics* for December (vol. vi., No. 2). This condition is more extreme than that known as "brachydactyly," since each digit—excepting the thumb and great toe—has only one phalanx and no nail. The deformity of the fingers behaves in some respects as a Mendelian dominant, but more than half the offspring in marriages between affected and normal persons are affected. The thumbs of these abnormal individuals are often flattened, and perhaps show a tendency to bifurcation.

THE New Zealand Defence Department has issued a practical pamphlet on fly-control in military camps, written by Prof. H. B. Kirk, of University College, Wellington. He has found that the breeding of flies in latrine-trenches may be stopped by ramming the earth hard; while spraying latrine-pans with light oil, or with a dilute solution of arsenic and sugar, kills very many flies. Wires coated with "tangle-foot" are found efficient for catching flies in rooms; vertical wires from a foot to three feet long are best, "suspended from a horizontal wire or from any chance support." An ingenious plan for trapping flies that may gain access to garbage-bins is described. Many ways of treating horse-dung for the destruction of maggots are suggested, such as spraying with 1 per cent. arsenical sheep-dip in sweetened water, or pegging tarpaulin or sacking along the base of stacks to prevent the insects from escaping.

IN view of the considerable extension of our arable area which is foreshadowed, the problem of the production and dissemination of improved varieties of agricultural seeds acquires still greater importance than has yet been attached to it in this country. According to a writer in the *Journal of the Board of Agriculture* (February, p. 1081), the introduction of "Plumage" barley alone has probably added at least 250,000*l.* to the value of the barley crop in this country. The lines upon which improvement must be carried out have now been fairly well defined, and the time would appear ripe for the development of a national organisation for the production and control of improved seed supplies. The writer of the article suggests that the desired end can only be secured by means of a Seed Control Agency, to be administered in association with the research institutes concerned with plant-breeding, and supported, if necessary, by the State. The agency should serve as a centre of distribution, not only of new and improved varieties of seeds, but also of guaranteed "pure" stocks of the established varieties of proved merit. A brief account is given of the work done on these lines and the results achieved, at Svalöf, in Sweden.

A GOOD representation of the weather for London is obtained from the Greenwich meteorological observations, and these also show generally the weather conditions over England. The long series of observations affords a trustworthy comparison with past years. Observations for the past winter, December to February, are taken from the results published in the daily weather reports of the Meteorological Office. The mean temperature for each of the three months was below the average, the greatest deficiency being 4·6° Fahr. in February, and the mean for the whole winter was 3·4° below the normal. The mean winter temperature, 35·9°, was 7° colder than the preceding winter, 1915–16, and was the coldest winter since 1894–95, when the mean was 35·1°, and the lowest in the last seventy-five years was 34·3° in 1890–91. Frost occurred in the shade on fifty-two nights during the three months, the occurrences being respectively 18, 19, and 15. Frost also occurred during the latter half of November, and it is occurring occasionally during the present month. The aggregate rainfall was less than the normal; the total measurement was 4·49 in., which is 86 per cent. of the average fall for the last sixty years. December was the only month with an excess of rain, and in all there were forty-eight days with rain. The duration of bright sunshine was 63 per cent. of the average, and there were forty-eight sunless days in the three months, comprising in all ninety days.

THE Transactions of the Optical Society of London for the session 1915–16 extends to more than 300 pages, twelve of which are occupied by subject and name indexes to the sixteen volumes of Transactions which have now appeared. One of the most valuable papers in the volume is that of Dr. Boswell on the properties which sand must possess to be suitable for glass making, and especially for optical glass making. By an examination of the optical glass sands of Fontainebleau and of Lippe he finds that the ideal sand for the purpose should consist of 100 per cent. silica, be practically free from iron, organic and clayey matter, and be in angular grains of the same size, unless the melting-pots are arranged for stirring. There are no sand beds at present known in this country from which sand for optical glass making can be obtained of such uniformity and at so low a cost as that from Fontainebleau. There are, however, large supplies of sand suitable for good flint glass, laboratory glass, table ware, plate glass, etc. Dr. Boswell points out that the whitest and best sand is almost invariably found associated with carbonaceous matter and often in the coal measures.

A USEFUL contribution to our knowledge of alternating stress is contained in a paper read at the Institution of Mechanical Engineers on February 16 by Dr. William Mason of Liverpool University. The machine used in the experiments was designed by the author so as to be capable of applying repeated torsion, or bending, or repeated torsion and bending simultaneously. It is a slow-speed machine, and most of the work was carried out at frequencies either less than, or very little exceeding, 200 cycles per minute. This plan has several advantages to recommend it. Typical curves were obtained showing how the cyclical range of strain varies with the range of stress and with the number of cycles endured. The material used was a dead mild steel. The range of stress under which the elasticity became impaired was always fairly definite. It was also found that a large number of repetitions were endured at ranges of stress that induced considerable ranges of extra-elastic strain. It is probable that the range of stress that would cause fracture in, say, 100 million cycles will be nearer in amount to the range that actually produced fracture in 1 to 5 million cycles than to the range of stress that brought departure from the elastic condition. The calculated ranges of stress at which cracking occurred were found to be greater for solid than for hollow test-pieces. The effect of giving rest to a specimen in which an extra-elastic range of strain has developed is to reduce the range of the strain; the effect appears to be similar to that of hardening after strain, and not to be of the nature of recovery of elasticity. No real adjustment of elastic limits (with equal + and − stresses) was observed. There appears to be a marked variation, with frequency of repetition of cycle, of the physical state of mild steel subjected to repetition of a higher range of stress than that consistent with unimpaired elasticity, the mobility being greater with higher frequency. For the quality of mild steel used, the range of induced maximum shear stress, at which the elasticity becomes impaired, is sensibly the same in both alternating torsion and alternating bending, thus showing agreement with Guest's criterion of elastic failure.

MESSRS. JOHN WHELDON AND CO., 38 Great Queen Street, W.C.2, have just issued a catalogue (New Series, No. 78) of second-hand books dealing with chemistry which should be of service to many readers of NATURE. It comprises the library of the late Dr. Hugo Muller, and is particularly rich in German works. Complete sets of the *Chemical Gazette*, the *Chemist, Chemical News* (to 1916), Journal, Proceedings, and Annual Reports of the Chemical Society of London (to 1916), the *Technologist*, and the Journal of the Royal Society of Arts (to 1913) are offered for sale.

THE following volumes are in preparation for appearance in the "Cambridge Psychological Library" (*Cambridge University Press*):—Psychology, Prof. J. Ward; The Nervous System, Prof. C. S. Sherrington; The Structure of the Nervous System and the Sense Organs, Prof. G. Elliot Smith; Prolegomena to Psychology, Prof. G. Dawes Hicks; Psychology in Relation to Theory of Knowledge, Prof. G. F. Stout; Mental Measurement, Dr. W. Brown; The Psychology of Mental Differences, C. Burt; Collective Psychology, W. McDougall; The Psychology of Personality and Suggestion, Dr. T. W. Mitchell; and The Psychology of Dreams, T. H. Pear.

OUR ASTRONOMICAL COLUMN.

COMETS 1915*a* AND 1916*b*.—The following continued ephemeris of comet 1915*a* (Mellish), calculated for Greenwich mean midnight by Mlle. J. Vinter-Hansen, has been circulated by Prof. Strömgren:—

1917		R.A.			Decl.		Log *r*	Log Δ
		h.	m.	s.	°	′		
Mar.	22	4	59	26	+41	25·0	0·8502	0·8597
	26	5	0	43		22·1		
	30		2	10		19·5	0·8543	0·8710
Apr.	3		3	44		17·5		
	7	5	5	26	+41	15·9	0·8584	0·8816

During the above period the path of the comet is in Auriga.

Prof. Strömgren also reports an observation of comet 1916*b* (Wolf), made at Copenhagen with the 14-in. equatorial on March 1. The comet is described as being very faint, and the corrections to the ephemeris were −56s. +3′.

The following continued ephemeris is given by Dr. Crommelin in the February number of the *Observatory*:—

1917		R.A.			Decl.		Log *r*	Log Δ	Brightness
		h.	m.	s.	°	′			
Mar.	22	18	56	26	+2	8	0·3063	0·2989	28
	26	19	5	59	3	2			
	30		15	36	3	59	0·2946	0·2751	33
Apr.	3		25	16	4	58			
	7		35	1	6	0	0·2833	0·2517	39
	11		44	50	7	3			
	15	19	54	43	8	9	0·2725	0·2291	45
	19	20	4	40	9	16			
	23		14	41	10	24	0·2622	0·2074	53
	27	20	24	46	+11	34			

The brightness on April 3, 1916, is taken as unity, and no allowance is made for physical causes of brightening. It is expected that the comet will become bright enough to be visible to the naked eye during June and July.

THE SUN-SPOT ZONES.—The results of an examination of the latitudes of sun-spots, as recorded in the Greenwich observations for the period 1879 to 1911, have been given by H. Arctowski (*Mem. Soc. Spett. Ital.*, February, 1917). As in the previous discussions by Mr. Maunder and Dr. Lockyer, he finds that the curve showing the variation of latitude during an 11-year cycle does not fall continuously from high to low latitude, but has several subsidiary maxima and minima. The phase of the cycle is shown to be different in different zones. Thus, in the period 1889–1903, the maximum frequency of spots in the zones 20° to 30° occurred in 1892; in the zones 20° to 10° it occurred in 1893; and in the zone +10° to −10° in 1894. Spots ceased to be visible in the first of these zones in 1896, in the second they remained until 1901, while in the third they did not appear until 1891 and persisted to 1903, two years after the new cycle had begun. The curves suggest that there is a superposition of a number of distinct variations, of which the principal corresponds to the simplified Spörer's curve and extends throughout the cycle, while some persist only a few years, and others may be of very short duration. The variation would thus appear to proceed by a succession of impulses.